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# MIOSHA

General Industry Safety and Health Division  
Michigan Occupational Safety and Health Administration  
Department of Labor and Economic Growth

## DIVISION INSTRUCTION

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DATE:  
May 22, 2007

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**SUBJECT:** Enforcement Policy and Procedures for Evaluating Occupational Exposure  
to Tuberculosis (TB)

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### ABSTRACT

- I.     **Purpose:**           This instruction establishes policies and procedures to ensure uniform enforcement of occupational health regulations when conducting an inspection related to occupational exposures to tuberculosis (TB).
- II.    **References:**
- A.   Appendix A: TB Inspection Checklist.
  - B.   Centers for Disease Control (CDC) and Prevention Morbidity and Mortality Weekly Report (MMWR): Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Settings, December 30, 2005 / Vol. 54 / No. RR-17.
  - C.   Centers for Disease Control (CDC) and Prevention Morbidity and Mortality Weekly Report (MMWR): Guidelines for Using the QuantiFERON-TB GOLD Test for Detecting *Mycobacterium tuberculosis* Infection, United States, December 16, 2005 / Vol. 54 / No. RR-15; 49.
  - D.   Centers for Disease Control (CDC) and Prevention Morbidity and Mortality Weekly Report (MMWR): Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendation from CDC, July 7, 2006 / Vol. 55 / No. RR-9.
  - E.   Collective Bargaining Agreements: Michigan State Employees Association (MSEA), and Michigan Public Employees (MPE).
  - F.   Department of Health and Human Services, Public Health Service, 42 CFR Part 84; Final Rule.

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- G. Michigan Occupational Safety and Health Administration (MIOSHA) Field Operations Manual (FOM) most recent version.
  - H. Michigan Occupational Safety and Health Administration (MIOSHA) Press Release February 2, 2005: MIOSHA Delays Requirement for Annual Fit-testing for Occupational Exposure to Tuberculosis (TB).
  - I. Occupational Health Standards, Parts 11, 451, 470 and 474.
- III. **Scope:** This instruction applies to the General Industry Safety and Health Division (GISHD).
- IV. **Distribution:** MIOSHA Staff. General: MIOSHA Web Site accessible.
- V. **Cancellations:** This Instruction replaces MIOSHA Division Instruction, Occupational Exposure to Tuberculosis, GISHD-COM-05-2R1 dated July 11, 2005.
- VI. **Contact:** [John Brennan](#), Division Director
- VII. **Originator:** \_\_\_\_\_  
John Brennan, Division Director

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- I. Purpose. This instruction establishes policies and procedures to ensure uniform enforcement of occupational health regulations when conducting an inspection related to occupational exposures to TB. This instruction provides guidelines for GISHD compliance officers to follow when conducting inspections at and preparing citations for worksites where there is potential employee exposure to TB.
- II. Scope. This instruction applies to compliance inspections conducted by GISHD.
- III. References.
  - A. Appendix A: TB Inspection Checklist.
  - B. Centers for Disease Control (CDC) and Prevention Morbidity and Mortality Weekly Report (MMWR): Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Settings, December 30, 2005 / Vol. 54 / No. RR-17.
  - C. Centers for Disease Control (CDC) and Prevention Morbidity and Mortality Weekly Report (MMWR): Guidelines for Using the QuantiFERON-TB GOLD Test for Detecting *Mycobacterium tuberculosis* Infection, United States, December 16, 2005 / Vol. 54 / No. RR-15; 49.
  - D. Centers for Disease Control (CDC) and Prevention Morbidity and Mortality Weekly Report (MMWR): Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendation from CDC, July 7, 2006 / Vol. 55 / No. RR-9.
  - E. Collective Bargaining Agreements: Michigan State Employees Association (MSEA), and Michigan Public Employees (MPE).
  - F. Department of Health and Human Services, Public Health Service, 42 CFR Part 84; Final Rule.
  - G. Michigan Occupational Safety and Health Administration (MIOSHA) Field Operations Manual (FOM) most recent version.
  - H. Michigan Occupational Safety and Health Administration (MIOSHA) Press Release February 2, 2005: MIOSHA Delays Requirement for Annual Fit-testing for Occupational Exposure to Tuberculosis (TB).
  - I. Occupational Health Standards, Parts 11, 451, 470 and 474.
- IV. Cancellation. This instruction replaces MIOSHA Division Instruction, Occupational Exposure to Tuberculosis, GISHD-COM-05-2R1 dated July 11, 2005.
- V. Originator. This instruction was authorized by John Brennan, Division Director, GISHD.

- VI. Definitions. For a complete list of definitions applicable to TB, refer to the list of definitions in the 2005 CDC Guidelines. A copy of these guidelines along with their appendices may be viewed at the CDC website using the following link:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm>.
- VII. Background.
- A. The TB bacillus [*Mycobacterium (M.) tuberculosis*] is carried through the air in tiny infectious droplet nuclei of 1 to 5 microns in diameter. These droplets may be generated when a person with pulmonary and laryngeal TB disease coughs, speaks, sings, sneezes, or spits. *M. tuberculosis* is generally transmitted only through the air, not by surface contact. Normal air currents can keep them airborne for prolonged periods and spread them throughout a room or building. When inhaled by susceptible persons, the mycobacteria in these droplets may become established in the lungs and, in some cases, spread throughout the body. Usually within 2-12 weeks after initial infection with *M. tuberculosis*, the immune response limits further multiplication of the tubercle bacilli and immunologic test result for *M. tuberculosis* infection may become positive. This condition is referred to as latent TB infection (LTBI). Persons with LTBI are usually asymptomatic and are not infectious. After an interval of months, years, or even decades, the initial infection may then progress to clinical illness (i.e. tuberculosis disease).
- B. After being present in many countries for decades, cases of TB dropped rapidly in the 1940s and 1950s when the first effective antibiotic therapies for TB were introduced. In 1985 the decline ended and the number of active TB cases in the US (as well as Michigan) began to rise again. According to the CDC, between 1985 and 1992, cases of TB in the US increased by 20 percent. Multi-drug resistant TB posed a particularly high hazard and the highest death rate. Due to greatly improved public health control measures, data reported to the CDC, for the years 1993 through 2001, indicated that the number of diagnosed TB cases had dropped in each of those years. However, an estimated 10 to 15 million people in the United States (US) are still infected with *M. tuberculosis* without displaying symptoms (latent TB) and about one in ten of these will develop active (infectious) TB within their lifetimes. In addition, although much research is being done to find a cure, multi-drug resistant TB in particular remains a difficult disease to treat.
- C. The prevalence of TB disease is not distributed evenly throughout all segments of the US population. The populations in the US who are still at greatest risk include:
1. People with human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS).

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2. Foreign-born nationals from countries that still have a high rate of infection.
  3. Homeless individuals or people living in high poverty areas.
  4. Drug addicts, alcoholics, or prisoners who are incarcerated.
  5. Residents in long-term care facilities such as nursing homes.
  6. Medical care providers or other health care workers in facilities housing or treating high-risk populations.
- D. In health care settings where services are provided to persons who have suspected or confirmed infectious TB disease, health-care workers who come in close contact with infectious TB persons are at greater risk of becoming infected with TB than the general population. Certain high-risk medical or laboratory procedures that are cough inducing or aerosol generating can further increase the risk of infection for health care workers.

VIII. Scope of Inspections.

- A. Inspections for occupational exposure to TB shall be conducted in response to employee complaints, referrals, related fatality/catastrophes, or as part of all industrial hygiene compliance inspections conducted in workplaces where the CDC has identified workers as having a greater risk and/or incidence of TB infection than in the general population. The degree of an employee's risk of occupational exposure to TB will vary based on a number of factors discussed in detail in the 2005 CDC Guidelines.

In response to employee complaints about occupational exposure to TB, the Federal Occupational Safety and Health Administration (OSHA) has conducted inspections, and issued citations where appropriate. State Plan States such as MIOSHA, are expected to implement enforcement policies and procedures (that are at least as effective as OSHA) for inspections concerning occupational exposure to TB in settings listed in paragraph E below. Current MIOSHA compliance activities are based on the 2005 CDC Guidelines.

- B. Enforcement activities for occupational exposure to TB apply to settings (as listed in paragraph E below) where employees (paid and unpaid including part-time, temporary, contract, and full-time) have the potential for occupational exposure to *M. tuberculosis* through sharing of air space with persons with infectious TB disease, or contact with clinical specimens that might contain TB.
- C. In the 2005 CDC Guidelines, health-care settings or health-care-associated settings are defined as places where health care is delivered. The term "health-care setting" includes inpatient settings, outpatient settings, TB clinics, settings in

correctional facilities in which health care is delivered, settings in which home-based health-care and emergency medical services are provided, and laboratories handling clinical specimens that might contain *M. tuberculosis*.

D. Various setting types might be present in a single facility. Healthcare settings include inpatient settings, outpatient settings, and nontraditional facility-based settings.

1. Inpatient settings include:
  - a) Patient rooms
  - b) Emergency departments (ED)
  - c) Intensive care units (ICU)
  - d) Surgical suites
  - e) Laboratories and laboratory procedure areas
  - f) Bronchoscopy suites
  - g) Sputum induction or inhalation therapy rooms
  - h) Autopsy suites
  - i) Embalming rooms
2. Outpatient settings include:
  - a) TB treatment facilities
  - b) Medical offices
  - c) Ambulatory-care settings
  - d) Dialysis units
  - e) Dental-care settings
3. Nontraditional facility-based settings include:
  - a) Emergency medical service (EMS)
  - b) Correctional facilities (e.g., prisons, jails, and detention centers) including the medical departments
  - c) Home-based health-care and outreach settings

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- d) Long-term-care settings (e.g., hospice, long term facilities for the elderly)
- e) Homeless shelters
- f) Law enforcement settings
- g) Drug treatment centers

E. Employees Covered:

1. The following employees/health-care workers (paid and unpaid including part-time, temporary, contract, and full-time personnel including transport staff) are covered under the MIOSHA enforcement requirements for occupational exposure to TB, and must be included in their respective employer's TB screening program:
  - a) Employees who have potential occupational exposure to *M. tuberculosis* through sharing air space with persons with suspected or confirmed infectious TB disease.
  - b) Employees whose duties involve contact with suspected or confirmed infectious TB patients.
  - c) Employees who enter airborne infection isolation (AII) rooms whether or not occupied by a TB patient.
  - d) Employees who participate in aerosol-generating or aerosol-producing procedures (e.g. bronchoscopy, sputum induction, and administration of aerosolized medications).
  - e) Employees who participate in suspected or confirmed *M. tuberculosis* specimen processing.
  - f) Employees who install, maintain, or replace environmental controls equipment including heating, ventilation, and air conditioning (HVAC) equipment in areas where persons with TB disease are encountered.
2. Dental health care personnel are covered by this directive if they perform dental treatment on suspected or confirmed active TB patients.
3. Emergency Medical Services (EMS) personnel are covered under this directive if they perform high hazard procedures on known or suspected TB individuals, or if they transport suspected or confirmed infectious TB individuals in an enclosed vehicle.



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4. Law enforcement officers and correctional facility staff (custodial and medical) are also covered under this directive if they work in close proximity with known or suspected TB detainees in jails or temporary holding cells.
5. For homeless shelters and drug treatment centers:
  - a) If a homeless shelter or a drug treatment center has elected not to treat TB patients in-house, the facility must establish protocols that provide for rapid early identification, followed by immediate transfer of suspected or confirmed TB individuals to a hospital for treatment. The affected employees must also be provided with the required TB training, two-step baseline tuberculin skin tests, and post-exposure medical evaluation, at the minimum.
  - b) If a homeless shelter and drug treatment center has elected to treat TB patients in-house, the facility must comply with the full provisions of this directive which requires a comprehensive TB infection program including maintenance of airborne infection isolation rooms, providing complete TB screening program, and complying with the respiratory protection requirements.

IX. Employer Responsibilities.

- A. Although there is no specific MIOSHA standard for TB, an employer's obligation to protect its employees from the hazard of TB are those set forth in the Michigan Occupational Safety and Health Act (Act 154 of the Public Acts of 1974, as amended). Rule 408.1011, Section 11(a) of Act 154 requires all employers to furnish to each employee, employment and a place of employment which is free from recognized hazards that are causing, or are likely to cause, death or serious physical harm to the employee.
- B. Recommendations for preventing the transmission of TB in health care settings have been established in the 2005 CDC Guidelines. Under these guidelines, the control of TB is to be accomplished through early identification, isolation and treatment of persons with infectious TB; through implementation of TB infection control program and procedures to reduce the risk of health-care-associated (nosocomial) exposures; through education and training of employees; through the use of administrative and/or environmental/engineering controls; and through the use of respiratory protection. MIOSHA believes that these guidelines reflect an appropriate, widely recognized and accepted standard practice to be followed by employers in carrying out their responsibilities under Act 154. A copy of these guidelines can be accessed at the CDC website:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm>.

X. Protection of Employees/Health Care Workers Against Occupational Exposure to TB

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- A. The employer shall develop and implement a TB exposure control program. The program must be reviewed and updated annually. Some portions of the program do not have to be in writing but the program must include the following elements:
  - 1. The TB infection control policy.
  - 2. The respiratory protection program.
  - 3. Employee training.
  - 4. TB screening.
  - 5. Medical surveillance.
  - 6. Use and maintenance of engineering controls.
  - 7. Administrative controls.
  - 8. Examples of administrative controls include:
    - a) Assigning responsibility for TB infection control in the setting.
    - b) Conducting a TB risk assessment of the setting.
    - c) Developing and instituting a written TB infection control plan to ensure prompt detection, airborne precautions, and treatment of persons who have suspected or confirmed TB disease.
    - d) Ensuring the timely availability of recommended laboratory processing, testing, and reporting of results to the ordering physician and infection control team.
    - e) Implementing effective work practices for the management of patients with suspected or confirmed TB disease.
    - f) Ensuring proper cleaning and sterilization or disinfection of potentially contaminated equipment (usually endoscopes).
    - g) Training and educating employees regarding TB, with specific focus on prevention, transmission, and symptoms.
    - h) Screening and evaluating employees who are at risk for TB disease or who might be exposed to *M. tuberculosis* (i.e., TB screening program).
    - i) Applying epidemiologic-based prevention principles, including the use of setting-related infection control data.

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- j) Using appropriate signage advising respiratory hygiene and cough etiquette.
  - k) Coordinating efforts with the local or state health department.
- 9. Examples of environmental/engineering controls include:
  - a) Primary environmental controls consist of controlling the source of infection by using local exhaust ventilation (e.g., hoods, tents, or booths) and diluting and removing contaminated air by using general ventilation.
  - b) Secondary environmental controls consist of controlling the airflow to prevent contamination of air in areas adjacent to the source (airborne infection isolation rooms), and cleaning the air by using high efficiency particulate air (HEPA) filtration or ultraviolet germicidal irradiation (UVGI) lamp.
- 10. The requirements for respiratory protection are outlined in section I below.
- B. The employer shall conduct initial and annual risk assessment for the potential of employee exposure to *M. tuberculosis* in each setting, regardless of whether or not patients with suspected or confirmed TB disease are expected to be encountered in the setting. Risk assessments shall be conducted for the entire setting, and for individual units within the setting to identify specific job duties that pose high risk of employee exposure to *M. tuberculosis*. The TB risk assessments will be used to determine the risk classifications of the entire setting and the respective functional units/settings within the overall setting. The risk assessments will also be used to determine the types of controls needed for a setting (See Appendix B of the 2005 CDC Guidelines for a sample TB Risk Assessment Worksheet).
- C. A risk classification shall be determined for the entire setting and for functional settings located within the setting. In certain settings (e.g., health-care organizations that encompass multiple sites or types of services), specific areas defined by geography, functional units, patient population, job type, or location within the setting might have different risk classifications. The risk classification shall be used to determine the provision of a TB screening program for employees, and the frequency of screening.
- D. For the purpose of TB screening, the three TB screening risk classifications are:
  - 1. Low risk classification applies to settings in which persons with TB disease are not expected to be encountered, and, therefore exposure to *M. tuberculosis* is unlikely. This classification also applies to employees or health-care workers who will never be exposed to persons with TB disease

or to clinical specimens that might contain *M. tuberculosis*. *Examples include:*

- a) Inpatient settings with less than 200 beds, and less than three suspected or confirmed TB patients in the preceding year.
- b) Inpatient settings with more than 200 beds, and less than six suspected or confirmed TB patients in the preceding year.
- c) Outpatient, outreach, home-based, and non-traditional health-care settings with less than three suspected or confirmed TB patients in the preceding year.
- d) TB treatment settings in which persons who will be treated have been demonstrated to have latent TB infection (LTBI) and not infectious TB disease; settings in which a system is in place to promptly detect persons who show signs or symptoms or with signs or symptoms of TB disease, and transfer them to an appropriate setting for treatment; and settings in which no cough-inducing or aerosol-generating procedures are performed.
- e) Laboratories in which clinical specimens that might contain *M. tuberculosis* are not manipulated.

2. Medium risk classification applies to settings in which the risk assessment has determined that employees/health care workers will or will possibly be exposed to persons with TB disease or to clinical specimens that might contain *M. tuberculosis*. *Examples include:*

- a) Inpatient settings with less than 200 beds, and had three or more suspected or confirmed TB patients in the preceding year.
- b) Inpatient settings with more than 200 beds, and had six or more suspected or confirmed TB patients in the preceding year.
- c) Outpatient, outreach, home-based, and non-traditional health-care settings that had three or more suspected or confirmed TB patients in the preceding year.
- d) TB treatment settings in which persons with TB disease are encountered; and settings in which the criteria for low risk classification are not otherwise met.
- e) Laboratories in which clinical specimens that might contain *M. tuberculosis* are manipulated.

- f) Potential ongoing transmission classification applies to any setting (or group of employees/health care workers) where evidence suggestive of person-to-person (e.g., patient-to-patient, patient-to-employee, employee-to-patient, or employee-to-employee) transmission of *M. tuberculosis* has occurred in the setting during the preceding year. Evidence of person-to-person transmission of *M. tuberculosis* includes clusters of tuberculin skin test (TST) or blood assay for *M. tuberculosis* (BAMT) conversions, employee/health care worker with confirmed TB disease, increased rates of TST or BAMT conversions, unrecognized TB disease in patients or employees/health care workers, or recognition of an identical strain of *M. tuberculosis* in patients or employee/health care workers with TB disease identified by deoxyribonucleic acid (DNA) fingerprinting. Potential ongoing transmission shall be used only as a temporary classification, shall be investigated immediately by the employer, and appropriate corrective actions taken to resolve the ongoing transmission. After it has been determined that the ongoing transmission has ceased, the setting shall be reclassified as medium risk classification for at least one year before returning to a lower risk classification if necessary.
- 3. If uncertainty exists regarding whether to classify a setting as low risk or medium risk, the setting shall be classified as medium risk.
- E. The employer shall establish and implement a protocol for the early identification of patients/individuals who have suspected or confirmed infectious TB disease (Refer to the 2005 CDC Guidelines for information on how to develop and implement early identification protocol).
- F. Medical Surveillance and Frequency of TB Screening for Employees:
  - 1. The employer shall develop and implement an employer-paid medical surveillance program that includes TB screening program.
  - 2. Baseline TB Screening: The employer, in covered workplaces, shall offer baseline TB screening to all current employees and new employees who have potential exposure to *M. tuberculosis* using two-step tuberculin skin tests (TST) or a single blood assay for *M. tuberculosis* (BAMT). Baseline TB screening shall be offered within 10 days of hire, and prior to occupational exposure. TB screening, as well as post-exposure follow-up and treatment evaluations shall be offered at no cost to the employees, and at times and locations convenient to the employees. Administering, reading, and interpreting of the tuberculin skin tests shall be performed by a qualified individual as described in the CDC Guidelines.

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3. The employer shall ensure that an employee who declines to accept tuberculin skin tests or blood assay *M. tuberculosis* signs a waiver statement with all of the following provisions.
  - a) Understanding of the risk associated with TB.
  - b) Acknowledgement of opportunity to accept TB skin testing at no cost to him/her.
  - c) Affirmation that she/he is declining TB skin testing.
  - d) Future availability of TB skin testing at no cost if desired and if still in at-risk status.
4. Periodic TB Screening (Frequency): Periodic TB screening shall be administered using the following frequency and schedule:
  - a) The employer shall offer tuberculin skin tests (TST) or blood assay *M. tuberculosis* (BAMT) annually to employees/health-care workers in settings where risk assessment has determined that employees/health-care workers will or will possibly be exposed to persons with TB disease or to clinical specimens that might contain *M. tuberculosis*.
  - b) For low risk settings or employees/health care workers: Annual TB screening is not required after baseline screening for employees/health care workers whose duties do not include contact with suspect or confirmed TB patients or laboratory/clinical specimens that might contain *M. tuberculosis*.
  - c) For medium risk settings or employees/health care workers: In addition to baseline TB screening, the employer shall offer tuberculin skin tests (TST) or blood assay *M. tuberculosis* (BAMT) annually to employees/health care workers who have negative baseline test results.
  - d) In the event of a potential ongoing transmission, the employer shall offer affected employees TB testing to be performed every 8-10 weeks until the cause(s) of the transmission have been corrected, and no additional evidence of ongoing transmission is apparent.
5. A "tuberculin skin test" (TST) means the administering of intradermal injection (Mantoux method) of tuberculin by designated, trained personnel.
6. A worker with documented positive tuberculin skin test result, or a worker who has received treatment for TB disease, or who has received

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preventive therapy for latent TB infection, is exempt from TB screening. Instead of participating in annual TB testing, such workers shall receive chest radiograph (chest x-ray) to exclude TB disease; must complete a medical questionnaire annually for the purpose of identifying any symptoms suggestive of TB disease; and must periodically be provided with information about the signs and symptoms of TB and the need for immediate medical evaluation by a physician or a trained health care professional to determine if the worker is experiencing symptoms of TB disease. Treatment for LTBI should be considered in accordance with CDC guidelines.

7. Reassessment following exposure or change in health: Workers who experience exposure to individuals who have suspected or confirmed infectious TB disease, and for whom infection control precautions have not been taken, shall be managed in accordance with 2005 CDC Guidelines and as outlined in subsection (7) below. Employees who develop symptoms of TB disease shall be immediately evaluated according to the 2005 CDC Guidelines.
8. Case management of infected employees: A covered employer must implement an evaluation and case management program (at no cost to employees) of infected workers as follows:
  - a) Conversion to a positive TB test shall be followed-up promptly by appropriate medical, laboratory, and radiographic evaluations to determine whether the employee has infectious TB disease.
  - b) An employee who exhibits signs or symptoms of active TB (e.g., weight loss, night sweats, bloody sputum, anorexia, or fever) shall be evaluated promptly for TB disease. The employee should not be allowed to return to work until a diagnosis of infectious TB disease has been excluded, or until the employee is on therapy and has been determined by a physician to be noninfectious.
  - c) The employer shall make reasonable accommodation (e.g., alternative job assignments or voluntary transfer) for employees who are known to be HIV-infected or otherwise severely immunosuppressed, and who work in settings where they may be exposed to *M. tuberculosis*. Such employees shall be referred to employee health professionals who can individually counsel the employees regarding their risk for TB disease. Upon the request of the immunocompromised employee, the employer shall offer, but not compel, a work setting in which the employee would have the lowest possible risk for occupational exposure to *M. tuberculosis*. Evaluation of these situations should also include consideration of

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the provisions of the Americans with Disabilities Act of 1990 and other applicable federal, state, and local laws.

- d) Emergency Medical Service (EMS) personnel should be included in the follow-up contact investigations of patients with infectious TB disease. The Ryan White Comprehensive AIDS Resource Emergency Act of 1990 (Public law 101-381) mandates notification of EMS personnel after they have been exposed to a patient with suspected or confirmed infectious TB disease (Title 42 U.S. Code 1994) (<http://hab.hrsa.gov/data2/adap/introduction.htm>).
- G. Worker Education and Training: The employer shall provide for all employees who have actual or potential exposure to *M. tuberculosis* or patients with infectious TB, training and information to ensure employee knowledge of issues listed (1) through (5) of this subsection below. Training on TB should be repeated as needed.
  - 1. Mode of TB transmission.
  - 2. Recognizing signs and symptoms of TB disease.
  - 3. TB Screening.
  - 4. Post exposure medical surveillance protocols and therapy.
  - 5. Site specific infection control protocols including the purpose and proper use of control methods such as airborne infection isolation (AII) rooms, ventilation, respiratory protection, etc.
- H. Environmental/Engineering Controls: The use of an engineering control method must be based on its ability to abate the hazard.
  - 1. Individuals with suspected or confirmed infectious TB disease must be placed in AII rooms. High hazard procedures on individuals with suspected or confirmed infectious TB disease must be performed in AII treatment or isolation rooms, booths, and/or hoods. AII refers to a negative pressure room or an area that exhausts room air directly outside or through HEPA filters if recirculation is unavoidable.
  - 2. Facilities that intend to transfer suspected or known TB individuals to another facility for treatment and therapy do not need to establish AFB isolations rooms. Other measures (such as administration controls, respiratory protection, and training, etc.) shall however, be used to protect employees from exposure to TB.
  - 3. Isolation and treatment rooms in use by individuals with suspected or confirmed infectious TB disease shall be kept under negative pressure to



induce airflow into the room from all surrounding areas (e.g. corridors, ceiling plenums, plumbing chases, etc.) See the CDC Guidelines for a description of engineering controls as well as methods for testing the effectiveness of these controls.

4. The employer must assure that AII rooms are maintained under negative pressure. At a minimum, the employer must use non-irritant smoke trails or some other indicator to demonstrate that the direction of the airflow is from the corridor into the isolation or treatment room with the door closed. Such demonstration must be conducted at least monthly for rooms that are not being used for TB patients but could potentially be used for such patients. The 2005 CDC Guidelines recommend daily negative pressure checks when a TB isolation room is undergoing changes to the ventilation system, or while the room is being used for TB isolation. If an anteroom exists, direction of the airflow must be demonstrated at the inner door between the isolation/treatment room and the anteroom.
5. Air exhausted from AII or treatment rooms must be safely exhausted directly outside, and not re-circulated into the general ventilation system.
6. In circumstances where air recirculation is unavoidable, HEPA filters must be installed in the duct system from the room to the general ventilation system. For these HEPA filters, a regularly scheduled monitoring program should be implemented to demonstrate as-installed effectiveness. The monitoring program should include:
  - a) A recognized field-test method.
  - b) Acceptance criteria.
  - c) Testing frequency.
7. The air handling system shall be appropriately marked with a TB warning sign in locations where maintenance personnel would have access into the ducts, fans, or filters for maintenance or repair activities.
8. In order to avoid leakage, all potentially contaminated air which is ducted through the facility from TB isolation and treatment rooms, must be kept under negative pressure until it is discharged safely outdoors (i.e. away from occupied areas and air intakes), or decontaminated by a recognized process (e.g. HEPA filter) before being re-circulated back into the isolation/treatment room or into the general ventilation system. HEPA filters must be properly installed and maintained. UV radiation as a sole means of decontamination shall NOT be used. The 2005 CDC Guidelines allow the use of UV radiation in waiting rooms, emergency rooms,

corridors, ventilation ducts, and the like where patients with undiagnosed TB could potentially contaminate the air.

9. The opening and closing of doors in an occupied TB AII or treatment room which is not equipped with an anteroom compromises the ability to maintain negative pressure in the room. For these rooms, the employer must utilize a combination of controls and practices to minimize spillage of contaminated air into the corridor or surrounding areas. Recognized controls and practices include, but are not limited to: minimizing entry to the room; adjusting the hydraulic closer to slow the door movement and reduce displacement effects; adjusting doors to swing into the room where fire codes permit; avoiding placement of room exhaust intake near the door; and using telephones or intercom to communicate with the patients, etc.
  10. If high-hazard procedures are performed in AII or treatment rooms without benefit of source control ventilation or local exhaust ventilation (e.g. hood, booth, tent, etc.), and droplets are released into the environment (e.g. through coughing), then a purge time interval must be imposed during which personnel must use a respirator when entering the room. Nonessential personnel and individuals must be restricted from entering the room during the purge time interval.
  11. Interim or supplemental ventilation units equipped with HEPA filters as described in the 2005 CDC Guidelines are acceptable.
- I. Respiratory Protection, Part 451, 29 CFR 1910.134.
1. 29 CFR 1910.134 (a)(2) of the Respiratory Protection Standard requires that respirators be provided by the employer when such equipment is necessary to protect the health of the employee. The employer shall provide respirators, which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program which shall include the requirements outlined in paragraph (c) of the respiratory protection standard. Work settings [described in VIII (E)] where use of a TB respirator is necessary or required, shall comply with all applicable provisions of Part 451.
  2. Requirements for a Minimally Acceptable Respirator Program.
    - a) The National Institute for Occupational Safety and Health (NIOSH) has determined that the minimal acceptable respirators for protection against TB infections are: the N-95 air purifying, particulate respirator certified under 42 CFR Part 84, Subpart K. HEPA, N-99 or N-100 respirators are also acceptable.

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- b) Affected employees must wear appropriate respirators as indicated above in the following circumstances:
  - (1) When employees enter rooms occupied by individuals who have suspected or confirmed infectious TB.
  - (2) When employees enter an AII room after discharge of TB patients, and before the air in the room has been properly purged.
  - (3) When employees are present during the performance of high hazard procedures on individuals who have suspected or confirmed infectious TB. Examples of high hazard procedures include: aerosolized medication treatment, bronchoscopy, sputum induction, endotracheal intubations and suction procedures, and autopsies.
  - (4) When emergency medical response personnel or other transport, in a closed vehicle, an individual with suspected or confirmed infectious TB.
- c) When use of respiratory protection (including disposable respirators) is required, a written respiratory protection program must be developed and implemented in accordance with Part 451, 1910.134(c).
- d) If a facility chooses to use disposable respirators as part of their respiratory protection program, their reuse by the same health care worker is permitted as long as the respirator maintains its structural and functional integrity, and the filter material is not physically damaged or soiled. The facility must address the circumstances in which a disposable respirator will be considered to be contaminated and not available for reuse.

3. Selection of Respirators

- a) Respiratory protective devices used in health-care settings for protection against *M. tuberculosis* shall meet the following criteria:
  - (1) Certified by National Institute for Occupational Safety and Health (NIOSH) as a non-powered particulate filter respirator (N-, R-, or P-95, 99, or 100), including disposable respirators, or powered air-purifying respirators (PAPR) with high efficiency filters.

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- (2) Ability to adequately fit respirator wearers (e.g., a fit factor of >100 for disposable and half-mask respirators) who are included in a respiratory protection program.
    - (3) Ability to fit the different facial sizes and characteristics of employees. (This criterion can usually be met by making respirators available in different sizes and models.)
  - b) The fit of filtering face piece respirators varies because of different facial types and respirator characteristics. Assistance with selection of respirators should be obtained through consultation with respirator fit-testing experts, CDC, occupational health and infection control professional organizations, peer-reviewed research, respirator manufacturers, and advanced respirator training courses.
  - c) The ability to be qualitatively or quantitatively fit tested in a reliable way to obtain a face-seal leakage of  $\leq 10\%$ .
  - d) The ability to be checked for face piece fit, in accordance with MIOSHA standards and good industrial hygiene practice, by the workers each time they put on their respirators.
- J. Employee Medical Records and Trade Secrets, R. 325.3451 through R 325.3476- Access to Employee Medical and Exposure Records:
  - 1. A record concerning employee exposure to TB is an employee exposure record within the meaning of the above rules.
  - 2. A record of TB skin test results, as well as records of employee medical evaluation and treatment, is considered employee medical records within the meaning of these rules. Where known, the worker's exposure record should contain a notation of the type of TB to which the employee was exposed (e.g. multi-drug resistant TB).
- K. Accident Prevention Signs and Tags, Part 476, Rule 4501:
  - 1. In accordance with Part 476, Rule 4501 (4) (b), a warning sign shall be posted outside the airborne infection isolation (AII) or treatment room. The warning sign must contain a signal word (i.e. "STOP," "HALT," "NO ADMITTANCE") or a biological hazard symbol, as well as a major message (e.g. "special respiratory isolations," "respiratory isolations," or "airborne infection isolation"). A description of the necessary precautions to be taken (e.g. "respirators must be donned before entering") or a message referring people to the nursing station for pre-entry instruction into AII rooms must also be posted outside the room.

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2. The employer shall affix biological hazard tags on air handling component (e.g. fans, ducts, filters) to identify TB hazards to employees who work on the air handling systems that transport TB contaminated air. (See 2005 CDC Guidelines for additional information).
- L. Recording and Reporting of Occupational Injuries and Illnesses, Part 11, R 408.22101 – R 408.22141.
1. TB Infection (positive TB screening results) and TB disease are both recordable on the MIOSHA 300 log for the designated high-risk workplaces described in Section VIII (E). A positive skin test for TB, even on baseline testing (except pre-employment screening), is recordable on the MIOSHA 300 log because there is a presumption of work-relatedness in these settings, unless there is clear documentation that an outside exposure had occurred.
  2. If an employee's TB infection, which has been entered on the MIOSHA 300 log, progresses to TB disease during the five-year maintenance period, the original entry for the infection shall be updated to reflect the new information. Because it is clinically difficult to determine if TB disease resulted from an earlier exposure indicated by the earlier skin test conversion, or from subsequent exposures, only one case should be entered to avoid double counting.
  3. If a setting provides a TB screening within two weeks of employment and the test is positive, it does not have to be recorded on the MIOSHA 300 forms. However, the initial test must be performed prior to any potential workplace exposure within the initial two weeks of employment.
  4. In accordance with Part 56 of Public Act 368 of 1978, the employer or representing physician is required to submit reports of known or suspected occupation TB infection or disease to MIOSHA.

XI. Scheduling of Inspections.

- A. The MIOSHA TB specialist shall conduct all TB fatalities, catastrophes or programmed inspections. TB related complaints and referrals should be investigated by industrial hygienists (IH) in the appropriate health district offices with the approval of the health supervisor and in consultation with the MIOSHA TB specialist.
- B. Complaints specifically alleging an existing TB hazard at any of the workplaces listed in Section VIII (E) will always require an evaluation of TB hazards at that site.

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- C. Complaints, referrals or limited scope inspections at any of the facilities defined in Section VIII (E) may be expanded to include an evaluation of TB hazards at the worksite. However the scope of an inspection shall NOT be expanded to include a TB investigation if the facility has NOT had a documented TB case within the previous six (6) months preceding the date of the inspection.
- D. If one of the facilities listed in Sections IX (B) has had a documented case of active TB within the previous six (6) months, the scope of the inspection SHALL be expanded to address TB related issues. The assigned IH must consult with the MIOSHA TB specialist during the investigation and when writing citations related to TB exposures.
- E. All TB investigations must include a review of the employer's plans to protect employees from TB exposure.
  - 1. Employee interviews and worksite observations shall be used to verify the employer's conformance with the employer's plans for employee TB protection.
  - 2. Some portions of the plan/program do not have to be in writing but all plans should include the following elements.
    - a) TB exposure control plan
    - b) The respiratory protection program.
    - c) Employee training.
    - d) TB screening.
    - e) Medical surveillance.
    - f) Use/maintenance of engineering controls.
    - g) Administrative controls.
- F. The appropriate health supervisor must review all case files that include a TB investigation and related citations. The health supervisor should consult with the TB specialist whenever reviewing a case file that includes a TB investigation. In addition, the appropriate Safety and Health Manager as well as the GISHD Director must review all case files that include citations related to TB. Some files may also need to be reviewed by additional agency or department administrators.

XII. Procedures for Inspections That Will or May Include a TB Investigation.

- A. Normal inspection procedures as described in the MIOSHA FOM shall be followed along with additional steps described in subsections (B) through (G) below.
- B. When entering a hospital or other setting listed in Section VIII (E) the IH shall present credentials and explain the nature/scope of the investigation to the Administrator, Medical Director, or other person in charge of the facility.
- C. In addition, the IH shall request the participation, during the opening conference, of the infection control director (if there is one) and/or any other employee who is responsible for administering or implementing portions of the employer's occupational health control program. These may include the training director, facilities engineer, head of nursing, etc.
- D. During the opening conference the IH shall first establish whether or not the facility has had an active TB case within the six (6) months preceding the opening conference date. If no active TB case was reported at the worksite within the previous six (6) months, complaints or referrals will NOT be expanded to include TB. If an active TB case was reported at the worksite within the previous six (6) months, complaints and referrals will be expanded at that time to include an evaluation/review of the employer's TB Exposure Control Program.
- E. Although employers are not required to maintain all elements of a general TB Exposure Control Program in writing, the IH should ask if the employer has developed a complete written program. If the employer has a written plan, the plan should be reviewed to assist in determining a facility's implementation of its own established policies. The IH shall also verify implementation of the employer's program through employee interviews and if feasible, direct observations. Professional judgment shall be used to identify which areas of a facility (e.g., emergency rooms, respiratory therapy areas, bronchoscopy suites, morgue, etc.) should be evaluated during the walk-through phase of the investigation. If a deficiency is found in the implementation of the TB Exposure Control Program (in accordance with this instruction) a citation shall be proposed for the deficiency.
- F. If the facility has not developed an overall written TB Exposure Control Program, or if the written program is found inadequate in any respect, the IH shall stress the need and importance of developing and implementing protocols to ensure the early identification, diagnostic evaluation and effective treatment of employees as well as patients that might have infectious TB, in order to prevent transmission of TB from patients to employees. As long as all required elements are developed and implemented, the lack of an overall written program will not result in a citation being issued. However, citations will be issued for failure to have portions of the overall program in writing, if a specific standard requires that a

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particular program element must be written as well as implemented; i.e. Part 451, Respiratory Protection requires that a respiratory protection program must be written as well as implemented.

- G. IHs who perform smoke-trail visualization tests to evaluate the effectiveness of the ventilation provided in a TB AII room should follow appropriate protocol prior to performing the test. The IH must be prepared to present to the employer a material safety data sheet (MSDS) for the smoke that is released during a smoke-visualization test. Evaluation of the ventilation may include other safe methods that determine the adequacy or effectiveness of the ventilation, but may not include actual entry into a room that would potentially expose an IH to TB.

XIII. Protective Measures for IH Performing TB Inspections.

- A. Health supervisors shall ensure that IHs performing TB related investigations are familiar with the CDC Guidelines and terminology and are adequately trained on health care work settings. Consultation with the TB Specialist should be done prior to beginning a TB investigation.
- B. All IHs in GISHD shall be offered the baseline two-step tuberculin skin test (TST) or a single blood assay for *M. tuberculosis* (BAMT) prior to conducting a TB investigation. All compliance officers in GISHD shall be offered a chance to participate in annual TB screening unless the officer has tested positive on a previous test.
- C. Compliance IHs shall avoid contact with an individual who has infectious TB. If an IH is inadvertently exposed to an individual who has infectious TB, a follow-up examination in accordance with the 2005 CDC Guidelines must be provided.
- D. A professional licensed health care provider shall perform all TB skin tests, medical surveillance, and post-exposure follow-up medical evaluations.
- E. IHs shall NOT enter AII rooms occupied by TB patients in order to evaluate employer compliance with MIOSHA regulations.
- F. IHs shall never intentionally engage in any activities that involve potential exposure to TB. The existence of hazards related to TB exposures and the adequacy of work practices shall be established through employee interviews, a review of the employer's written and/or implemented policies and procedures, as well as personal observation of work practices, in a manner that prevents exposure; i.e. through an observation window.
- G. If an AII room is occupied by a patient with confirmed or suspect TB disease or the room has not been adequately purged when a smoke-trail test is performed, the IH must assume that the isolation room is not safe for entry.



XIV. Recording in IMIS.

- A. A MIOSHA TB-related investigation is any occupational health inspection conducted for the purpose of investigating the occurrence or alleged occurrence of employee exposure to TB, or any health related inspection that results in a TB-related citation.
- B. When a TB investigation is conducted, a MIOSHA-1-GISHD (Inspection Report) must be completed by the IH as done in any inspection. However, the code "N 2 TB" must also be entered in Item 42, Optional Information.

XV. Citation Policy.

- A. Relevant chapters of the FOM must be followed when preparing and issuing citation for hazards related to TB.
- B. The rules and standards listed below may be cited when TB hazards or violations are found in the target workplaces. Employers must comply with the provisions of these requirements in particular, whenever an employee may be occupationally exposed to TB.
- C. Act 154 of 1974, as amended, R 408.1011, Section 11(a) (General Duty Clause).
- D. Part 451, Respiratory Protection, 1910.134.
- E. Part 476, Rule 4501, Accident Prevention Signs and Tags.
- F. Part 470, Employee Medical Records and Trade Secrets, R 325.3451 through R 325.3476.
- G. Part 11, Recording and Reporting Occupational Injuries and Illnesses, R 408.22101 through R 408.22142.

XVI. Violations and Citation Guidelines.

- A. All elements of subsections B through G below, in this section, must be addressed by employers at high risk settings described in Section VIII (E) to ensure adequate protection of employees from occupational TB hazards. Violations of these MIOSHA rules and requirements will frequently be classified as serious.
- B. Guidelines for Citing Violations of the General Duty Clause: [L 408.1011(a) of Act 154, Public Act of 1974 as amended].
  - 1. Section 11(a) of Act 154 provides: "An employer shall furnish to each employee, employment and a place of employment which is free from recognized hazards that are causing, or are likely to cause, death or serious physical harm to the employees."

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2. Section 11(a) citations must meet the requirements outlined in the MIOSHA FOM and shall be issued only where there is a hazard which cannot be cited under, and abated by compliance with, a specific MIOSHA standard.
3. Occupational exposure to TB is a serious and recognized hazard and feasible methods do exist to prevent, eliminate, or reduce employee exposure to TB.
4. Industry recognition, for the purposes of citing section 11(a) for TB issues, means the employer's recognition of the hazard of employees being infected with TB through exposures detailed below in subsections (a) and (b) of this section. The high-risk workplaces listed in Section VIII (E) generally acknowledge the determination of the TB hazards and exposure controls as described by CDC, which is the nationally recognized authority on TB. The employer's TB Exposure Control Program or a generic infection control program can constitute further evidence of knowledge and hazard recognition.
5. The presence of a hazard, not simply the absence of a particular means of abatement, is the basis for the general duty clause citation. All applicable abatement methods identified for correcting the same hazard shall be issued under a single Section 11(a) citation.
6. If a citation for a violation of the General Duty Clause is justified, violations/deficiencies related to the requirements of early identification protocols, TB skin testing, post exposure medical evaluation, case management of infected employees, employee TB education and training, and environmental/engineering controls, shall be cited under section 11(a) of Act 154.
7. Citations for violations of Section 11(a) shall be issued only to employers whose employees work in the types of settings described in Section VIII (E) and whose employees have one or both of the following exposures.
  - a) Potential exposure to the exhaled air from an individual with suspect or confirmed pulmonary TB disease.
  - b) Exposure, without protection, to a high hazard procedure performed on an individual with suspected or confirmed infectious TB disease, and which has the potential to generate infectious airborne droplet nuclei. Examples of high hazard procedures include: aerosolized medication treatment, bronchoscopy, sputum induction, endotracheal intubation and suctioning procedures, emergency dental endoscopic procedures, and autopsies.

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- c) Exposure within the context of this directive means the condition of being subjected to air potentially contaminated with airborne droplet nuclei of *M. tuberculosis*.
  - d) A suspect TB case is one in which the setting has identified an individual as having symptoms consistent with TB. The CDC has identified the symptoms to be: productive cough, coughing-up blood, and weight loss, loss of appetite, lethargy/weakness, night sweats, or fever. Each covered setting may establish its own criteria for early identification of suspect individuals.
- 8. The following language may be used in writing a general duty citation:
  - a) "MCL 408.1011(a), Act 154, Public Act of 1974, as amended: On [specify date of violation] the employer failed to furnish each employee, employment and a place of employment which was free from recognized hazards that were causing, or were likely to cause, death or serious physical harm to the employees. Workers [specify job classifications] who were working in [specify department, ward, unit or location], were exposed to the hazard of being infected with *M. tuberculosis* through unprotected contact with [specify group such as patients, inmates, clients, etc.] who was/were infectious or suspected to be infectious with *M. tuberculosis*. [Describe your observations or list the deficiencies determined.]"
  - b) "Abatement Requirement: Ensure that employees are protected from occupational TB exposure and infection. Feasible abatement methods for reducing this hazard, as recommended by the Centers for Disease Control and Prevention, include, but are not limited to: [list abatement methods]."
- C. Guidelines for Citing Violations of Part 451, 29 CFR 1910.134, Respiratory Protection Standard.

Violations of respiratory protection for TB shall be cited under Part 451, and shall follow the policies and guidelines established in the most recent MIOSHA Directive or administrative policies.
- D. Guidelines for Citing Violations of Employee Medical Records and Trade Secrets Standards, R. 325.3451 through R 325.3476.

During all TB investigations, these records shall be handled in compliance with the requirements of the Employee Medical Records and Trade Secrets Standard.

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- E. Guidelines for Citing Violations of Part 476, Rule 4501 (4)(b): If a citation is warranted under Part 476, Rule 4501 (4)(b), the following language may be used in the violation statement:

"SIGNS AND TAGS, PART 476, Rule 4501(4)(b): Appropriate hazard warning signs were not used to signify the actual or potential presence of a biohazard and to identify equipments, containers, rooms, materials, experimental animals, or combinations thereof, which contained, or were contaminated with viable hazardous agents. The warning signs posted outside respiratory isolation or treatment rooms [indicate room numbers, building wing, department, unit, etc.] did not contain a signal work or a biological hazard symbol, in conjunction with a major message and the necessary precautions to be taken before entry into the isolation or treatment room."

- F. Guidelines for Citing Violations of TB Recordkeeping: Recording and Reporting of Occupational Injuries and Illnesses, Part 11, R 408.22101 – R 408.22141

TB recordkeeping violations shall be cited in accordance with MIOSHA FOM.

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Appendix A is a blank copy of the MIOSHA TB Inspection Checklist. This checklist must be filled out and included in the case file of all TB inspections.

## **APPENDIX A**

### **Michigan Department of Labor & Economic Growth Michigan Occupational Safety and Health Administration (MIOSHA)**

#### **TB INSPECTION CHECKLIST**

##### **SECTION A – GENERAL INFORMATION**

ESTABLISHMENT NAME: \_\_\_\_\_

WORKSITE ADDRESS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

INSPECTION NO.: \_\_\_\_\_

DATE OF INSPECTION: \_\_\_\_\_

IH NAME: \_\_\_\_\_

DISTRICT: \_\_\_\_\_

1) Establishment is: (circle whichever applies)

- a) Health care setting
- b) Correctional institution
- c) Long-term care facility for the elderly
- d) Homeless shelter
- e) Drug treatment center
- f) Emergency medical service
- g) Police department
- h) Dental office
- i) Doctors office
- j) Local public health clinic
- k) Other (describe) \_\_\_\_\_

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- |   |   |   |
|---|---|---|
| 2) Has establishment had any suspected or confirmed TB cases within the past six (6) months?  | Y | N |
| 3) Is this inspection due to a TB complaint, a TB referral, or programmed inspection?   | Y | N |
| 4) Do affected workers in the establishment have “exposure” to any of the following:  |   |   |
| a) Exhaled air (with or without the use of appropriate protection) from individuals with suspected or confirmed pulmonary TB, or laboratory specimens that might contain <i>M. tuberculosis</i> ?   | Y | N |
| b) High hazard procedures such as aerosolized medication treatment, bronchoscopy, sputum induction, endotracheal intubation and suction procedures, emergency dental, endoscopic procedures, autopsies, pulmonary function testing, etc. (with or without appropriate protection) or handling of laboratory specimens that might contain <i>M. tuberculosis</i> ? | Y | N |

**NOTE: If “YES” to question #2, #3, or #4 continue. If “NO” to question #2, #3, or #4 STOP and discontinue TB investigation.**

- |   |   |   |
|---|---|---|
| 5) Does establishment have a TB infection control program?  | Y | N |
| 6) Is the infection control program in writing?   | Y | N |
| 7) Does establishment have a designated infection control coordinator?  | Y | N |
| If yes, Name and Title of Infection Control Coordinator:  |   |   |
| <hr/>   |   |   |
| 8) Has establishment performed TB risk assessment for the work units or settings within the establishment?  | Y | N |
| 9) Based on the TB risk assessment, what is the risk classification for the overall establishment/setting? (See definitions below and check whichever applies.) |   |   |

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- a) **Low Risk:** [ ]

In patient settings with <200 beds, and <3 suspected/confirmed TB patients in previous year; or equal to/greater than 200 beds, and <6 suspected or confirmed TB patients; or settings in which persons with TB disease are not expected to be encountered, and, therefore, exposure to *M. tuberculosis* is unlikely. This classification also applies to employees or health-care workers who will never be exposed to persons with TB disease or to clinical specimens that might contain *M. tuberculosis*.

- b) Medium Risk: [ ]

In patient settings with <200 beds, and more than or equal to 3 suspected/confirmed TB patients in previous year; or equal to or greater than 200 beds, and more than or equal to 6 suspected or confirmed TB patients; or settings in which persons with TB disease are expected to be encountered, and, therefore, exposure to *M. tuberculosis* is likely. This classification also applies to employees or health-care workers who will be exposed to persons with TB disease or to clinical specimens that might contain *M. tuberculosis*.

- c) Potentially Ongoing Transmission: [ ]

Any setting (or group of employees/health care workers) where there is evidence suggestive of person-to-person (e.g., patient-to-patient, patient-to-employee, employee-to-patient, or employee-to-employee) transmission of *M. tuberculosis* has occurred in the setting during the preceding year. Evidence of person-to-person transmission of *M. tuberculosis* includes clusters of tuberculin skin test (TST) or blood assay for *M. tuberculosis* (BAMT) conversions, employee/health-care worker with confirmed TB disease, increased rates of TST or BAMT conversions, unrecognized TB disease in patients or employees/health-care workers, or recognition of an identical strain of *M. tuberculosis* in patients or employee/health-care workers with TB disease identified by deoxyribonucleic acid (DNA) fingerprinting. Potential ongoing transmission classification shall be used only as a temporary classification.

- |  |   |   |
|--|---|---|
| 10) Based on the TB risk assessment, does any unit or settings within the establishment have a Medium Risk classification? | Y | N |
|--|---|---|

If Yes, indicate the work unit, department, or setting: \_\_\_\_\_

- 11) Based on the TB risk assessment, does any unit or settings within the establishment have a Potentially Ongoing Transmission classification? Y    N

Yes, indicate the work unit, department, or setting: \_\_\_\_\_

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## Enforcement Policy and Procedures for Evaluating Occupational Exposure to Tuberculosis (TB)

**SECTION B – ITEMS COVERED UNDER GENERAL DUTY CLAUSE – 408.1011(a)**

**Note:** If establishment has never had an active TB case, and there is no evidence of employee conversion based on TB skin test or blood assay TB test result, general duty citation shall not be issued since there is no evidence of TB hazard present. Recommendations should, however, be made to institute and implement TB exposure control program.

For each item below circle (AV) if the (N) response applies, and there is a violation of the corresponding item. (AV = Alleged Violation)

**Early Identification Protocol****Employee Medical Surveillance and TB Screening**

Does the establishment have/implement an Early Identification Protocol to identify Patients/individuals who may have suspected or confirmed TB disease?	Y	N	AV
---	---	---	----

If yes, describe: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- |  |   |   |    |
|--|---|---|----|
| 1) For establishments who have employees with potential exposure to <i>M. tuberculosis</i> , does the employer offer two-step baseline tuberculin skin test (TST) or a single blood assay for <i>M. tuberculosis</i> (BAMT) to all current potentially exposed employees and all new employees within 10 days of hire, and prior to occupational exposure. | Y | N | AV |
| 2) Is TB screening offered at no cost to the employee?   | Y | N | AV |
| 3) Is TB screening offered at times and locations convenient to the workers?   | Y | N | AV |
| 4) Is TB screening administered, read, and interpreted by a qualified individual?  | Y | N | AV |
| 5) Does each employee who declines to accept tuberculin skin test or blood assay <i>M. tuberculosis</i> sign a waiver statement?   | Y | N | AV |
| 6) Does the waiver statement contain the following provisions:   |   |   |    |
| a) Understanding of the risk associated with TB.   | Y | N | AV |
| b) Acknowledgement of opportunity to accept TB skin testing at no cost to him/her.   | Y | N | AV |
| c) Affirmation that she/he is declining TB skin testing.   | Y | N | AV |



- d) Future availability of TB skin testing at no cost if desired and if still in at-risk status. Y N AV

### **TB Screening - Low Risk Settings**

Does the employer offer two-step baseline tuberculin skin test (TST) or a single blood assay *M. tuberculosis* (BAMT) to all current potentially exposed employees and all new employees prior to exposure? Y N AV NA

**Note: Annual TB screening is not required for low risk settings.**

### **TB Screening - Medium Risk Settings**

- 1) Does the employer offer two-step baseline tuberculin (TST) or a single blood assay *M. tuberculosis* (BAMT) to all current potentially exposed employees and all new employees prior to exposure? Y N AV NA
- 2) Does the employer offer annual tuberculin skin test (TST) or blood assay for *M. tuberculosis* (BAMT) to all current potentially exposed employees? Y N AV NA

### **TB Screening - Settings with Potentially Ongoing Transmission**

- 1) Does the employer offer two-step baseline initial baseline tuberculin skin test (TST) or a single blood assay *M. tuberculosis* (BAMT) to all current potentially exposed employees and all new employees prior to exposure? Y N AV NA
- 2) In the event of a potential ongoing transmission, does/did the employer offer affected employees with tuberculin skin test (TST) or blood assay for *M. tuberculosis* (BAMT) performed every 8 - 10 weeks until the cause(s) of the transmission have been corrected, and no additional evidence of ongoing transmission is apparent. Y N AV NA

**NOTE: A worker with documented positive tuberculin skin test result, or a worker who has received treatment for TB disease, or who has received preventive therapy for latent TB infection, is exempt from TB screening. Instead of participating in annual TB testing, such workers shall receive chest radiograph (chest x-ray) to exclude TB disease; must complete a medical questionnaire annually for the purpose of identifying any symptoms suggestive of TB disease; and must periodically be provided with information about the signs and symptoms of TB and the need for immediate medical evaluation by a physician or a trained health care professional to determine if the worker is experiencing symptoms of TB disease. Treatment for LTBI should be considered in accordance with CDC guidelines.**

### **Post-Exposure Evaluation/Reassessment**

**Check here [ ] and skip this subsection if there has not been a documented employee exposure incident. Otherwise, complete this section.**

- |   |   |   |    |    |
|---|---|---|----|----|
| 1) Does the employer reassess employees who experience incidental exposure (with or without appropriate protection) to individuals with suspected or confirmed infectious TB?   | Y | N | AV | NA |
| 2) Does the employer implement immediate follow-up evaluations (physical, laboratory, and radiographic) of employees who convert to positive TB skin test in order to determine whether the employee has infectious TB disease? | Y | N | AV | NA |
| 3) Does the employer re-evaluate and manage employees who develop symptoms of TB disease?   | Y | N | AV | NA |
| 4) Does the employer institute work restrictions for infectious TB employees?   | Y | N | AV | NA |

### **Worker Education and Training**

- |   |   |   |    |    |
|---|---|---|----|----|
| 1) Have all current workers been provided training and information on TB related hazards?                               | Y | N | AV |    |
| 2) Does the facility have a provision to train new employees?   | Y | N | AV |    |
| 3) Does the training cover the following topics:  |   |   |    |    |
| a) Mode of transmission?  | Y | N | AV |    |
| b) Signs and symptoms of TB disease?  | Y | N | AV |    |
| c) Medical surveillance and therapy?  | Y | N | AV |    |
| d) Site-specific protocols for TB exposure control (e.g.: signs, general precautions, etc.)?                            | Y | N | AV |    |
| e) Purpose and proper use of engineering controls (i.e. AFB isolation rooms, exhaust ventilation, etc., if applicable)? | Y | N | AV | NA |
| f) Purpose and proper use of respiratory protection?  | Y | N | AV |    |
| g) Recognizing and reporting to a designated person, patients or clients with symptoms suggestive of infectious TB?     | Y | N | AV |    |
| h) Post-exposure protocols to be followed in the event of an exposure incident?   | Y | N | AV |    |

### **Engineering/Environmental Controls**

**Check here [ ] and skip this subsection if the facility transfers TB patients to another facility for treatment, and does not use isolation rooms for TB patients. Otherwise, complete this section.**

- |  |   |   |    |    |
|--|---|---|----|----|
| 1) Are individuals with suspected or confirmed infectious TB disease placed in airborne infection isolation (AII) rooms?   | Y | N | AV | NA |
| 2) Are high hazard procedures on individuals with suspected or confirmed infectious TB performed in AII rooms, booths or hoods?  | Y | N | AV | NA |
| 3) Are the isolation/treatment rooms (when in use by individuals with suspected or confirmed infectious TB disease) kept under negative pressure from all surrounding areas?   | Y | N | AV | NA |
| 4) Are the isolation/treatment rooms equipped with local exhaust or source control ventilation (e.g. hood, booth tent, etc.) and used during high hazard procedures (e.g. cough-induced procedures)?                                       | Y | N | AV | NA |
| 5) If the response to (d) above is NO, is there a time interval imposed during which personnel must use a respirator when entering the room?   | Y | N | AV | NA |
| 6) Is air from AII rooms exhausted directly outside, and not re-circulated into the general ventilation system?  | Y | N | AV | NA |
| 7) If air exhausted from the AII rooms is re-circulated into the general ventilation system:   |   |   |    |    |
| a) Is the air decontaminated (e.g.: with the use of HEPA filters installed in the duct system) before being re-circulated back into the isolation/treatment rooms or the general ventilation system?                                       | Y | N | AV | NA |
| b) Are the HEPA filters checked and monitored on a regular schedule (daily for occupied, and monthly for unoccupied TB isolation rooms) to ensure continuous effectiveness?  | Y | N | AV | NA |
| c) Is the air handling system (duct work, fans, filters, etc.) appropriately marked with TB warning in areas where maintenance personnel would have access into the equipment?   | Y | N | AV | NA |
| 8) If AII isolation/treatment rooms are also used to treat non-TB patients, are the rooms purged and decontaminated between discharge of a TB patient and admittance of a non-TB patient? If yes, describe method and time interval: _____ | Y | N | AV | NA |
| _____  |   |   |    |    |
| _____  |   |   |    |    |

**SECTION C – RESPIRATORY PROTECTION [Part 451, 1910.134]**

1) Do employees wear respirators in the following circumstances:

- |  |   |   |    |    |
|--|---|---|----|----|
| a) When they enter rooms housing individuals with suspected or confirmed infectious TB?                                    | Y | N | AV | NA |
| b) When present during performance of high hazard procedures on individuals who have suspected or confirmed infectious TB? | Y | N | AV | NA |
| c) While transporting individuals with suspected or confirmed infectious TB during emergency medical response?             | Y | N | AV | NA |
| d) When working in close contact with individuals with suspected or confirmed infectious TB?                               | Y | N | AV | NA |

**Note: If questions a, b, c, or d above DO NOT apply, skip the rest of the Respiratory Protection section. Otherwise, complete the rest of this section.**

2) What type(s) of respirator(s) do the workers wear?

\_\_\_\_\_ Non-powered particulate respirators NIOSH-approved as N95, R95, P95, N99, N100, or P100: (NIOSH certification # \_\_\_\_\_).

\_\_\_\_\_ Powered air-purifying respirators (PAPRs) with high efficiency filters (HEPA): (NIOSH certification # \_\_\_\_\_).

\_\_\_\_\_ Other (describe): \_\_\_\_\_

- |  |   |   |    |
|--|---|---|----|
| 3) Are the respirators maintained in their originally approved structural and functional form, as well as in sanitary condition? | Y | N | AV |
| 4) Does the facility have a complete written respiratory protection program?   | Y | N | AV |
| 5) Has each affected worker been provided respiratory training?  | Y | N | AV |
| 6) Has each affected worker been provided initial fit testing?   | Y | N | AV |
| 7) Has each affected worker been provided annual fit testing?  | Y | N | AV |
| 8) Has each affected worker been provided medical evaluation?  | Y | N | AV |
| 9) Do the workers reuse disposable respirators?  | Y | N |    |
| 10) Does the facility have stipulated time and use limits after which disposable respirators can no longer be reused?            | Y | N | AV |

**SECTION D – ACCIDENT PREVENTION SIGNS AND TAGS [Part 4501]**

**Check here [ ] and skip this section if facility does not use AII rooms for TB patients. Otherwise, complete this section.**

- |  |   |   |    |    |
|--|---|---|----|----|
| 1) Is there an appropriate warning sign posted outside each AII isolation or treatment room?   | Y | N | AV | NA |
| 2) Are there biological hazard tags/symbols on air handling equipment, (e.g. fans, ducts, filters) that are used to transport TB contaminated air? | Y | N | AV | NA |

**SECTION E – ACCESS TO EMPLOYEE MEDICAL AND EXPOSURE RECORDS****[Part 470, R 325.3451 Thru R 325.3476]**

- |   |   |   |    |
|---|---|---|----|
| 1) Does the facility maintain employee medical and exposure records concerning employee exposure to TB in accordance with R 325.3451 thru R 325.3476? | Y | N | AV |
| 2) Do employees and their designated representatives have access to the exposure and medical records?   | Y | N | AV |

**SECTION F – RECORDING AND REPORTING OF OCCUPATIONAL INJURIES & ILLNESSES – MIOSHA 300 Log [Part 11, R 408.22101 Thru R 408.22142]**

**Note: MIOSHA 300 log for the previous five (5) years must be reviewed during all TB related inspections.**

**Skin test conversions on pre-employment TB skin tests, or initial baseline TB skin tests performed within two weeks of hire and before work assignment to area of potential exposure to TB are not attributed to exposure in the workplace, and are not required to be recorded on the MIOSHA 300 log.**

**The attending physician or the employer is required to file an Occupational Disease Report for each employee who develops occupational TB disease.**

- |  |   |   |
|--|---|---|
| 1) Has facility had incidents of employee positive TB skin test conversion?  | Y | N |
| 2) Did the conversions occur on initial baseline TB skin testing? <b>(If yes, does not have to be recorded on I &amp; I log as a conversion).</b>                      | Y | N |
| 3) Did the conversions occur on pre-employment skin testing? <b>(If yes, does not have to be recorded on I &amp; I log as a conversion).</b>                           | Y | N |
| 4) Did the conversions occur on skin testing performed within two weeks of employment? <b>(If yes, does not have to be recorded on I &amp; I log as a conversion).</b> | Y | N |

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- |  |   |   |    |
|--|---|---|----|
| 5) Did the conversions occur before work assignment to area of potential exposure to TB? <b>(If yes, does not have to be recorded on I &amp; I log as a conversion).</b> | Y | N |    |
| 6) If response to 2, 3, 4, or 5 above is “No”, were all the conversions recorded in the Injury & Illness Log (MIOSHA 300)?   | Y | N | AV |
| 7) Are the entries recorded in Column M (3) of the Illnesses Section?  | Y | N | AV |
| 8) Did the facility update its I & I log entries when there was a progression of employees TB infection to actual TB disease?  | Y | N | AV |

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_